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the honorary president the Duke de Loubat.

It has begun the publication of a journal in large quarto form, the first number of which has forty-one pages and several illustrations. Its contents are two articles, one by Dr. Hamy on the American collections brought together at Genoa on the occasion of the fourth centenary of the discovery of America; the second on the present state of the Fu Sang question. They are both interesting, and it is especially gratifying to see that M. Henri Cordier, the author of the latter, follows the opinion of the eminent Sinologue Professor Schlegel in wholly dismissing the discovery of Fu Sang from the list of possible pre-Columbian voyages to America. (I gave Prof. Schlegel's argument in these notes September 9, 1892).

It is not stated what relation, if any, this new society bears to the long-existent 'Société Américaine de France,' which has at times published highly valuable material.

D. G. BRINTON.

SCIENTIFIC NOTES AND NEWS.

A DIRECTOR IN CHIEF OF SCIENTIFIC BUREAUS IN THE DEPARTMENT OF AGRICULTURE.

A LARGE number of letters have been addressed to Senator Redfield Proctor, Chairman of the Committee on Agriculture, urging the appointment of a permanent Director in Chief of the scientific bureaus and investigations under the charge of the United States Department of Agriculture. The writers of the letters include the presidents and members of the faculties of Johns Hopkins University and of Yale University, the president of Columbia University, Professors Brewster, Shaler and others most competent to judge of the importance of this measure.

The Joint Commission of the Scientific Societies of Washington has adopted the following resolutions:

WHEREAS, The work of the Department of Agriculture in the discovery, exploration, development, conservation and proper utilization

of the resources of our country is of the utmost importance; and whereas the Department's capacity for originating, procuring and disseminating knowledge of vital importance to farming and other interests, though already large, is capable of much extension in the future; and whereas the results accomplished through the system now in existence have been exceedingly great, and the one thing above all others necessary to increase the efficiency of this organization is a permanent policy with regard to its work and personnel:

Resolved, That the Joint Commission of the Scientific Societies of Washington, composed of the officers of the several scientific societies of the city, comprising in all a membership of nearly 2,000, heartily approves the proposition to create the office of 'Director-in-Chief of Scientific Divisions in the Department of Agriculture,' to be filled by a broadly educated and experienced scientific administrative officer, holding office during good behavior.

Resolved, That the plan of having a permanent officer in charge of the scientific and technical work under the executive head of a department represents a distinct advance in good government, and is therefore not only of national importance, but if carried out certain to have a beneficial effect upon the scientific standing of Government work in all its relations.

RÖNTGEN RAYS AND THE ROYAL SOCIETY.

THE London papers give the following account of the meeting of the Royal Society on February 13th: A paper by Lord Kelvin on The Generation of Longitudinal Waves in Ether described an arrangement for obtaining pressural disturbance through a considerable space of air, accompanied by a very small proportion of ordinary transverse waves. His apparatus would afford the means of exposing sensitive plates to these longitudinal vibrations, and thus might assist in elucidating the nature of the Röntgen rays. A paper by Prof. J. J. Thomson was also read relating to experiments from which he concludes that all substances when transmitting the Röntgen rays are conductors of electricity. A discussion followed the reading of these papers, in which de-

tails were given of many experiments on these X-rays. Its general effect was, however, to show that, while many interesting points have been noted, the obscurity hanging over the subject had not been appreciably lightened. Considerable differences of opinion were manifest even upon the conditions of the Röntgen experiments. While some advocated the use of very powerful currents, others had been successful with relatively weak ones; and while some were in favor of regarding the phosphorescence of the glass as the efficient source of the rays, others ascribed them to the glow of the electrodes. A new turn was given to the discussion by Captain Abney, who ventured, amid some expressions of dissent, to doubt whether the action of the Röntgen rays on a sensitive plate could properly be described as photographic. He cited several facts which, in his opinion, excluded the theory of direct photographic action in any ordinary sense, and indicated some preference for the view that the Röntgen rays acted by first setting up phosphorescence or action of some unknown kind in the glass at the back of the sensitive film. This view was corroborated by an experiment described by Prof. Dewar upon platino-cyanide of ammonium at low temperatures. This salt, ordinarily fluorescent, only became phosphorescent at the temperature of liquid air. On being exposed to Röntgen rays, instead of the ordinary light, while immersed in liquid air, it showed when the liquid air was poured off brilliant phosphorescence. This proved that whatever might be the nature of the Röntgen rays, they were convertible into the light rays affecting the human eye. A large number of experiments were also described by Prof. Dewar showing that resistance to the passage of Röntgen rays increased with increase of atomic weight. Organic substances were all relatively transparent, following the carbon, oxygen, hydrogen and nitrogen of which they are composed. Mere complexity of structure made no difference, but substitution products showed increasing opacity in the order of the atomic weights of the combined chlorine, bromine and iodine.

ASTRONOMY.

THE January number of the monthly notices

of the Royal Astronomical Society contains a very interesting article by Messrs. Christie and Dyson upon the progress of work on the Astrophotographic Catalogue at Greenwich Observatory. It appears that up to the present time no less than 160 plates for the Catalogue have been measured. Moreover, at the present rate of progress 180 plates are being measured annually, and it is estimated that only five or six years will be required to finish the Greenwich zone. The precision of the Greenwich measures is not quite as great as it might be, however, because the authorities there prefer to sacrifice some accuracy in order to expedite the progress of the work. We venture to doubt whether this course is to be commended. It is hardly in accord with the best traditions of the Greenwich Observatory. Probably twelve years devoted to this work, instead of six, would have been sufficient to extract the very highest accuracy possible from these photographic measures.

PROF. ALBRECHT, of Potsdam, has now published in the *Astronomische Nachrichten* the results of his researches on the Variation of Latitude, to which we made reference in a recent number. The former publication took place in the report of the proceedings of the International Geodetic Committee, which is not very accessible to the general astronomical public.

H. J.

GENERAL.

WE much regret to learn that the *American Meteorological Journal* will be discontinued after the forthcoming April number, which ends the twelfth volume. The *Journal* has been carried on at a financial loss on the part of the editors ever since its foundation in 1884, and the present step has been decided upon because there seems no hope that it will become self-supporting, and because the editors do not wish any longer to be financially responsible for a magazine that has not secured the support which it seems to them to have deserved.

THE series of the *Catalogue of Scientific Papers* of the Royal Society, covering the years 1874-83, has been completed by the publication of Vol. XI.

AT a meeting of the Royal Photographic

Society on February 13th it was mentioned that as bearing on the suggestion that the Röntgen rays might resemble ultra-violet rays in possessing germicidal effects, that a cultivation of diphtheria microbes had been subjected to their influence for 12 hours without any sterilizing results.

THE Senate committee on appropriations has concluded its consideration of the agricultural appropriation bill increasing it in the aggregate to the extent of \$47,260, and making a total appropriation of \$3,262,652. The principal increase is \$40,000 for the publication of the special report on the diseases and the feeding of cattle, and the principal reduction is \$9,000 on the appropriation of \$15,000 made by the House for an investigation of irrigation.

THE Odessa correspondent of the *London Times* writes that the Russian government will send a special scientific mission to observe the total eclipse of the sun which occurs on August 9th. It is remarkable that this total eclipse will be almost exclusively visible throughout the northern part of the Russian Empire, as the line of totality passes from the extreme north of Norway, over Novaya Zemlya, Siberia and Manchuria, to Jesso, in Japan. The mission will be in charge of three astronomers from the Nikolas Observatory at Pulkoff, and leaves Odessa in May by one of the cruisers belonging to the Russian Volunteer Fleet Committee for Vladivostok, whence it will go near the mouth of the river Amoor for observations. The committee has agreed with the government to convey the mission from Odessa to Vladivostok and back again to Odessa free of charge.

DR. LAUGHTON MCFARLANE, professor of surgery at the University of Toronto, died on February 29th, from blood poisoning, contracted while amputating the toes of a patient at the General Hospital a week ago. He was 54 years old.

THE London correspondent of the *New York Sun* states that an Antarctic expedition has been arranged for next winter. It will be partly a trading and a scientific enterprise, and will be under the command of Capt. Svend Foyn, of Christiania. Mr. W. S. Bruce, of the Ben Nevis Observatory, will have charge of the sci-

entific party, composed of himself and four other men. The scientific party will be landed on the Antarctic continent in Victoria Land in January next, and the vessel will then engage in whale and seal fishing, returning to Australia. The following season, in January, 1898, she will return and take off the scientific party, who hope by then to have obtained knowledge of the fauna, flora, geology and topography of the Antarctic region. If found practicable, an attempt will be made to reach the south magnetic pole.

THE Secretary of the Treasury has sent to the Senate the report of Mr. Joseph Murray, a special agent, who has spent seven seasons on the seal islands of Alaska. He states that in 1894, the first year the Paris regulations were in force, 142,000 seals were killed, of which number 60 per cent. were female, all of which left pups to die on the island of starvation. He claims that there were at the close of that season, by the most liberal estimate, not more than 300,000 seals on the islands, whereas when he first went there, in 1888, there were fully 3,000,000.

DR. SELLE and Dr. Neuhauss have exhibited in Berlin colored photographs which have attracted much attention. They are said to be taken by the method used by Mr. Joly of Dublin, three specially prepared plates appropriate for green, red and blue lights respectively being used. The process has been simplified and the time of exposure shortened. Mr. Frederick Ives exhibited before the Royal Photographic Society of London, on February 25th, his stereopticon showing colored pictures.

PROF. ROBERTS-AUSTEN was announced to deliver the Bakerian Lecture before the Royal Society, on February 20th, his subject being the 'Diffusion of Metals.' *Nature* states that Prof. Roberts-Austen has obtained some singular experimental results connected with the mobility of solid metals. Many experimenters in England, especially Prof. Graham and Lord Kelvin, have studied the diffusion of gases and saline solutions, and Prof. Roberts-Austen measured the rate at which certain metals will penetrate each other. He finds that solid gold, for instance, will diffuse into and move about slowly in lead, even at the ordinary tempera-

ture of the air, and with considerable rapidity if the lead be warmed, though far from melted. Evidence as to the presence of wandering atoms in a solid possesses much interest now that views as to the nature of metals and other solids have been extended by the discovery that certain rays of light will penetrate them.

THE Postmaster-General has modified the order forbidding the use of the mails for the transmission of specimen germs of cholera or other diseased tissues. By special permit and in mailing packages constructed in accordance with special specifications such germs may be transmitted to United States or municipal laboratories.

ACCORDING to the Boston *Transcript* Mr. Charles B. Cary, curator of the ornithological department of the Field Columbian Museum, has established at Palm Beach, Florida, a museum devoted to the natural history of the State, which is soon to be opened to the public. An excellent collection of birds, reptiles, mammals, fishes, etc., is already in order, and aquaria are to be fitted up for the study of salt and fresh water fishes.

A DEPUTATION has appeared before Mr. Chaplin at the House of Commons to urge that the present English legislation, which practically prohibits the use of self-propelled wagons, be repealed. Mr. Chaplin said that he was in full sympathy with the movement represented by the deputation. A bill was now being prepared by the Local Government Board, and he hoped, with the assistance of Mr. Russell, to carry it without opposition through the House this session.

THE March number of McClure's Magazine contains an article on scientific kite flying by Mr. Cleveland Moffett, describing with illustrations the experiments made by Mr. Eddy.

BY the courtesy of those in charge of the exhibit of the Plant System at Atlanta, the United States National museum has obtained a number of fossils from the Peace Creek phosphate deposit. The greater part of these, including some well preserved teeth, are remains of the mammoth *Elephas primigenius colombi*, and are interesting as showing the large average size of the Florida mammoth. Among the smaller

specimens is a fine metacarpus and molar of *Bison latifrons*, the former indicating an animal a trifle over six feet high at the shoulder, about nine inches taller than *Bison americanus*. Two molars of a species of *Procamelus* are probably referable to *Anchenia minimus* of Leidy and are the first of this species that have come to light.

A RECENT paper by Dr. Gustav Hartlaub, issued as a reprint from *Abhandlungen des Naturwissenschaftlichen Vereins zu Bremen* treats of birds which have recently become extinct or whose numbers have been so reduced that the species seems threatened with extinction. Twenty-three are placed in the first category and twenty in the second, although some of these, like *Notornis mantelli*, are practically extinct. Man and his familiars, cats, rats and hogs, are directly responsible for most of the destruction; and Dr. Hartlaub, in an introductory chapter, treats of the various ways in which it is brought about. References to the more important literature on the species discussed, and a statement of the institutions in which the rarer species are preserved, make the paper particularly valuable to the ornithologist.

Dr. LEIDY'S delayed posthumous memoir on fossil vertebrates from the Alachua clays of Florida is now in press, and will appear as a part of the transactions of the Wagner Free Institute of Science.

A NEW monthly journal of entomology has appeared in Tokyo, Japan, under the title *Konchū Gaku Zasshi*, or Journal of Insect Science. The first number was issued in October last, and is wholly in Japanese, excepting an English title and the statement that the plate represents insects injurious to rice and mulberry.

WILHELM ENGELMANN, Leipzig, announces the early publication of a *Grundriss der Psychologie* by Prof. W. Wundt. The book is awaited with much interest, and should be translated into English without delay. Prof. Wundt is by common consent the preëminent representative of modern psychology. His *Menschen und Thierseele*, published more than thirty years ago, defined the course that psychology has since

followed, and his *Grundzüge der physiologischen Psychologie* (Fourth Edition, 1893) is the standard compendium. The volume of Prof. Wundt's writings is almost as remarkable as is their value. He has published large works on physiology, physics, logic, ethics and philosophy, and has in preparation a treatise on anthropological and sociological psychology.

PROF. WUNDT established, in 1883, an *Archiv Philosophische Studien* for the publication of researches in philosophy and psychology, which is now in its twelfth volume. Last year Prof. E. Kraepelin, of Heidelberg, established a similar archiv and now a third archiv, *Beiträge zur Psychologie und Philosophie* has been begun by Prof. Götz Martius, of Bonn. The first number of the first volume contains a preface and an introduction by the editor and four papers all concerned with the brightness of colors. It may also be mentioned that Prof. Münsterberg has published his contributions to psychology in the form of *Beiträge*, and that there is in Germany an excellent *Zeitschrift für Psychologie u. Physiologie der Sinnesorgane*, edited by Prof. Ebbinghaus, of Breslau, and Prof. König, of Berlin. Ten large volumes of this journal have been issued since its establishment in 1890. These contain full reviews of psychological literature and many important papers, those on vision being probably of greater value than all the papers combined that have been published elsewhere on this subject.

THE number of the *Zeitschrift für Psychologie* issued on January 14th contains an index of psychological literature for the year 1894. The index appears somewhat late, but is very complete, especially in regard to publications on the senses. The *Psychological Review* issued, at the beginning of February, a supplement containing a bibliography of the literature of psychology for 1895, compiled by Dr. Livingston Farrand, of Columbia University, and Prof. Howard C. Warren, of Princeton University. The index contains 1394 titles, distributed as follows: General, 136; genetic, comparative and individual psychology, 238; anatomy and physiology of the nervous system, 205; sensation, 125; consciousness, attention and intellect, 180; feeling, 91; movements and vo-

lition, 81; abnormal and pathological, 338. This index is also about to be issued in France as part of *L'Année Psychologique*, edited by MM. Beaunis and Binet.

DISCUSSION AND CORRESPONDENCE.

CERTITUDES AND ILLUSIONS.

TO THE EDITOR OF SCIENCE: In your issue of February 21, in an interesting paper on 'Certitudes and Illusions,' Major J. W. Powell has repeatedly referred to an illusion which he describes as a certain tendency to 'reify void'—an ancient, and, as Major Powell has very well said, a disastrous tendency of the human mind. This is the tendency to recognize mere abstractions as realities, and, in consequence, to explain phenomena by referring their source to 'essences' or to some sort of 'substrate,' defined as 'some occult existence unknown and unknowable, which gives to bodies their likeness or unlikeness.' Major Powell very justly condemns this tendency, exemplifies it in a number of cases, suggests explanations for its existence, and rightly declares its inevitable outcome to be a bad metaphysic. So far the present writer cordially agrees with Major Powell.

But, as a humble student of the history of philosophy, the present writer is very sorry to find that Major Powell, influenced by some singular historical 'illusion,' repeatedly refers to one of the best known of modern thinkers, Hegel, as a prominent example of precisely this sort of bad metaphysic. "As the substrate of matter, or reified nothing, is entertained in the minds of some as an entity, so some thinkers make essence a property of this substrate—a nonentity of a nonentity. Chuar (Major Powell's entertaining Indian friend), Hegel, and Spencer reason in this manner."

Major Powell is no doubt an absolute authority as to the views of his Indian friend, and he appears in this particular case to be in no wise unfair to Spencer. But to put Hegel in the same category, to define that lifelong opponent of the 'unknowable,' that merciless dialectical dissolver of all the 'essences,' 'substrata,' and similar entities of traditional metaphysic, as one who, at least in *this* sense,